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THE PLANT DISEASE REPORTER

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OFFICE OF MYCOLOGY AND DISEASE SURVEY

Vol. XIII November 1, 1929 Number 12

OFFICE NOTES

ANNUAL SURVEY REPORT

On October 24 chief collaborators in the States were asked to prepare their annual reports on the plant diseases of the year. It was requested that the report be submitted by December 15 or earlier if possible. It is necessary for it to be in Washington early in the new year in order to be included in the annual summary.

Other collaborators and those who have data on plant diseases that should be recorded in the Survey summary and files are urged to contribute them through the chief collaborators of the States or directly to the Washington office.

R.J.H.

FRUIT DISEASES

REPORT ON ARKANSAS APPLE DISEASES

The Arkansas apple crop, most of which is grown in the Ozark Section in the northwestern corner of the State, will total over 2,000,000 bushels this year. This however is considerably below the average for the past 5 years. The importance of the Ozark Section in the apple production of the country makes the following report on apple diseases by Prof. V. H. Young of the Arkansas Agricultural Experiment Station, October 18, particularly interesting.

Drought injury. Excessively dry weather during July, August and early September resulted in a great deal of injury in many orchards. A considerable number of trees died during the growing season and it is to be expected that many

more will die as a result of drought injury combined with winter injury during the coming winter. At present there is a considerable amount of second blooming in orchards, which may be indicative of a condition which will result in freezing injury.

Black rot (Physalospora cydoniae). The frog-eye leaf spot stage of this disease was rather prevalent early in the season due probably to the unusually wet weather of late spring and early summer but fruit rot stage seemed to be less destructive than usual.

Bitter rot (Glomerella cingulata). Although this disease appeared at an unusually early date and started to spread rather rapidly the advent of dry weather early in July completely checked its spread and very little damage resulted.

Scab (Venturia inaequalis). Extremely prevalent this year. Practically 100 per cent infection in unsprayed or poorly sprayed orchards and considerable amount even where spray was fairly well carried out. A period of excessively wet weather immediately after the calyx spray prevented the application of the first cover spray at the proper time and also furnished unusually favorable conditions for infection. There appears to have been much more late infection this year than is usually the case.

Blotch (Phyllosticta solitaria). Very prevalent this year in all orchards in which the fungus is established, especially when the first blotch spray was not applied on time.

CAUSES OF APPLE CULLS - MASSACHUSETTS

With Mr. Bourne, our entomologist, I have examined cull apples in three Massachusetts packing houses with the object of determining the relative importance of each of the several causes which make an apple a cull or cider apple (rather than a B grade or better). We did this at the request of the Massachusetts Fruit Growers Association.

In both packing houses where McIntosh apples were examined by us, 7 per cent of the apples which the growers sent in were graded as culls or ciders. In the other packing house which we visited, 9 per cent of the Baldwins were graded as culls, below B grade.

The percentages of Baldwin culls due to each of the several causes were as follows:

Mechanical injury	55.6
Scab	2.0
Miscellaneous insects	33.9
Plum curculio	7.8
Codling moth	5.4
Too small	5.3
Russet (spray injury or slimatic)	1.7
Baldwin spot	1.6
Black rot	trace

The percentages of McIntosh culls due to each of the several causes in two packing houses were as follows:

	House A	House G
Scab	60.0	25.0
Too small	32.0	8.5
Mechanical injury	18.0	25.0
Plum curculio	16.0	33.9
Codling moth	11.6	4.0
Miscellaneous insects	6.6	11.5

Our growers were relatively successful in their spraying for the prevention of scab. Much less than 1 per cent of the Baldwins received at the Baldwin packing house were culls because of scab. In the case of the McIntosh, about 2 per cent of those received at one packing house and about 4 per cent of those received at the other had enough scab on them to cause them to be graded as inferior to B grade, that is as culls.

There was of course considerable scab in some orchards, but most of our orchardists are spraying more and better than they used to and the dry summer was in their favor. (W. L. Doran, Oct. 28)

PHYMATOTRICHUM OMNIVORUM ON CITRUS AND GRAPE

W. J. Bach, writing on October 25 from Weslaco, Texas, reported the following concerning root rot of citrus and grape in the Lower Rio Grande Valley.

CITRUS

Root rot (Phymatotrichum omnivorum (Shear) Duggar has appeared more often this year than any of the past three years. The loss in most cases is comparatively small, ranging from 1 to 6 trees per grove. However, two or three cases have been observed in which the loss ran as high as 6 to 17 per cent on 3 to 6 acre tracts. The expense of growing trees to the age of 1 to 3 years, when they are most commonly attacked, makes the loss run into considerable money.

GRAPE

Root rot (Phymatotrichum omnivorum (Shear) Duggar has appeared on grapes every month during the year but is worst following the summer season or especially following any early fall rains. Ten to 25 per cent of the vines in practically every planting are lost from this trouble within the first 3 years after planting.

VEGETABLE DISEASES

DISEASES OF VEGETABLE CROPS IN TEXAS

The following report on diseases of beans, cabbage, eggplant, pepper, and tomato is by W. J. Bach (Oct. 25).

BEAN

Rhizoctonia (Rhizoctonia sp.). Occurring generally in all plantings causing loss varying from 5 to 10 per cent. Careful examination reveals infection on 25 per cent of plants in some plantings, causing a stunting of plants and irregularity in fields.

Mosaic. About 2 per cent of plants affected in blossom stage.

Blight (Bacterium phaseoli EFS.) Appearing on about 5 per cent of the plants. The occurrence of this disease corresponds with the infestation of leaf hoppers. Bordeaux-nicotine spray has given only fair control this season. The advent of cooler weather has materially reduced the activity of the leaf hoppers.

CABBAGE

Black rot (Bacterium campestre EFS.) Has been found in only one planting so far this season where only 2 to 5 per cent of the plants were affected. In this case the seed had been treated with bichloride of mercury but had been planted on land where cabbage had been raised for the past three years. Level planting and faulty irrigation perhaps contributed more to the appearance of the disease than any other factor. Black rot was very severe in this section last season.

Downy mildew (Peronospora parasitica (Pers.) D By.) Appeared on about 3 per cent of the plants in one seed bed following a rainy cloudy period late in September. The trouble was readily checked by one application of Bordeaux-arsenate of lead spray.

EGGPLANT

Blight (Phomopsis vexans (S. & S.) Harter. Has occurred general in plantings causing a loss of 1 to 75 per cent of the fruit. Only one planting has been observed in which the loss has been heavy.

Mosaic. A type of chlorosis resulting in the appearance of white plants or white leaves on plants, which has been referred to as mosaic, has appeared on 2 to 5 per cent of the plants in several locations. Affected plants become stunted and fail to yield. Some plantings have been almost entirely wiped out by this trouble during the past two seasons.

PEPPER

Mosaic. Has appeared on about 75 per cent of the plants in one planting of 5,000 plants. Ten per cent of the plants show the disease in severe form, being noticeably dwarfed.

Southern wilt (Sclerotium rolfsii Sacc.) Has appeared on pepper plants affecting about 2 per cent of the plants.

TOMATO

Fusarium wilt (Fusarium lycopersici Sacc.) Has appeared in practically every planting in the Valley affecting from 2 to 5 per cent of the plants. It appears to be most common in the Clarks early variety.

Mosaic. Has been observed on 12 varieties in the variety test plot. All varieties included in the test are affected to some extent.

Septoria leaf spot (Septoria lycopersici Speg.) Appeared following September rains but has not been severe.

CABBAGE AND POTATO DISEASES REPORTED FROM WISCONSIN

R. E. Vaughan sent in the following notes (Oct. 17).

CABBAGE

Yellows (Fusarium conglutinans Woll.) Favorable year for yellows development in non-resistant stock. Owing to wide use of resistant strains little loss from yellows.

Blackleg (Phoma lingam (Tode) Desm.) Some loss from home grown seed and distribution of seedlings from a few beds.

Black rot (Bacterium campestre (Pam.) EFS.) Few badly infected fields in Racine-Kenosha district traceable to infected seed and distribution of seedlings. Most fields good. Little field spread of black rot.

Club root (Plasmodiophora brassicae Wor.) Not much spread noted from previous years. Spread in field seemed to be inhibited by dry weather.

Soft rot (Bacillus carotovorus L. R. Jones). Some loss on maturing heads late in season.

POTATO

Late blight (Phytophthora infestans (Mont.) D By.) Very little development of either blight or subsequent rot.

Scab (Actinomyces scabies (Thax.) Gues.) Observations at warehouses indicate slightly more scab than usual. Seems to be associated with high soil temperature and low humidity. Seed treatments successful where carefully done and clean soil used.

Rhizoctonia (Corticium vagum Berk. & Curt.) About as usual.

DISEASES OF SWEET POTATOES REPORTED FROM FLORIDA

A report on the occurrence of sweet potato diseases in Florida has been received from G. F. Weber (Oct. 16).

Wilt (Fusarium sp.) Not important, causing very little loss.

Soft rot (Rhizopus nigricans Ehr.) Causes more loss than any other disease of this plant.

Charcoal rot (Sclerotium bataticola Taub.) Occasionally important in storage but not generally destructive or important

Java black rot (Diplodia tubericola (Ell. & Ev.) Taub.) Very common and the cause of considerable loss in storage.

Black rot (Ceratostomella fimbriata (Ell. & Hals.) Elliott.) Not as bad as last year. No losses reported previous to digging time.

Southern blight (Sclerotium rolfsii Sacc.) Not severe in the field except on summer plantings at setting time.

Scurf (Monilochaetes infuscans Ell. & Hals.) Common and well distributed. Losses are usually light because potatoes are dug early and marketed.

Leaf mold (Choanephora cucurbitarum). Frequently found on leaves during the summer.

Leaf spot (Alternaria sp.) General but not severe. Usually on older leaves at center of hills.

Leaf blight (Phyllosticta batatas (Thuem.) Cke.) Common, widespread and often of considerable consequence especially during the latter half of the season.

White rust (Albugo ipomoeae-panduranae (Schw.) Sw.) Not common or destructive but occasionally collected.

Mosaic (virus?) Scattered but not common. Losses are relatively small.

DISEASES OF CELERY

"Cracked stem" in celery grown in marl soil in Massachusetts. Specimens received from Worcester were shown to Dr. G. H. Coons who recognized it as identical with the trouble he investigated at Michigan as cracked stem. Condition serious enough so that the field evidently would yield practically no marketable product. (Charles Drechsler)

Early blight (Cercospora apii Fresen.) in Maryland. Commencing to blight leaves rather seriously in market gardens at Hagerstown. Growers said it had appeared since recent rains. (R. J. Haskell & W. A. Archer, Sept. 18)

Late blight (Septoria apii Rostr.) in Wisconsin. Less than usual. A start of disease near Madison was successfully checked by Bordeaux spray. (R. E. Vaughan, Oct. 17)

MISCELLANEOUS REPORTS ON VEGETABLE DISEASES

SALSIFY

White rust (Albugo tragopogonis (DC.) S. F. Gray in Maryland. Occurred moderately in a small patch at Hagerstown, September 18. Another plot on the same farm did not show it. The first plot was under overhead irrigation. (W. A. Archer & R. J. Haskell, Sept. 18)

SWEET POTATO

Fusarium stem rot (Fusarium spp.) in Arkansas. Reports from the inspectors of the Arkansas Plant Board indicate that stem rot was much more prevalent and destructive this year than usual. The number of fields which could be certified this year by inspectors of the Board was less than in any previous year due to the presence of this disease. (V. H. Young, Oct. 18)

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COTTON DISEASES

COTTON DISEASES IN ARKANSAS

Arkansas ranks third among the states in cotton production being exceeded only be Texas and Mississippi. The following notes on diseases of the crop were sent in by V. H. Young (Oct. 18).

Wilt (Fusarium vasinfectum Atk.) Extremely prevalent this year and apparently favored by the unusually dry weather, at least probably resulted in more damage on that account. Susceptible varieties such as Trice and Dolfos severely affected. However, many of the cotton growers are now using resistant varieties and there seems to be prospects that many more will do so in the next year. Several selections of Rowden as well as some of the other better known wilt-resistant varieties are being used with considerable success.

Wilt (Verticillium albo-atrum Reinke & Berth.) A few specimens of this disease have been collected in Mississippi County in the northeastern corner of the state but so far as was determined very little damage resulted this year.

Anthracnose (Glomerella gossypii (E. A. South.) Edg.) Dry weather apparently unfavorable for the development of this disease. Almost none present this year.

Angular leaf spot (Bacterium malvacearum EFS.) Although commonly present in small amounts in all cotton, very little damage resulted this year.

Root knot (Caconema radicicola (Greef) Cobb). Few specimens seen but undoubtedly present in many of the sandy soils of the state.

Rust (physiological). Widespread damage resulted this year from a condition commonly known as rust, characterized by poor growth, light set of bolls, dark reddish coloration during August and the presence of a large amount of a leaf spot which yields a species of Alternaria. By early September practically all the plants in localities affected with this disease are dead or dying, the leaves being shriveled and brown. There is considerable evidence that potash fertilizers are of value in relieving this condition.

Boll rot. The excessively dry weather of the last two-thirds of July and all of August probably prevented any but the minimum of boll infection. Practically no boll rot is present this year and cotton is opening unusually well.

DISEASES OF CEREAL AND FORAGE CROPS

DISEASES OF RICE IN ARKANSAS

Stem rot (Sclerotium oryzae Catt.) Caused some loss this year in early rice in Arkansas. Late rice seemed to be less severely infected in Arkansas, Louisiana and Texas, as rice which was ripe enough to harvest even though infected was well tillered and had not blown down.

Leaf spot (Helminthosporium sp.) Much more abundant this year than last and at Crowley, Louisiana, it was more severe than it had been for many years. Some infection had occurred in Louisiana by the last of May on early varieties.

Glume blotch (Helminthosporium sp.) Much more abundant than last year. Many sterile florets were also found which were infected with Helminthosporium.

Straighthead (physiological). Very little straighthead was observed or reported this year. One piece of rice on sod land was examined and about one-fifth of the heads had failed to fill. This was an exceptionally severe case.

(E. C. Tullis, Oct. 22)

DISEASES OF ALFALFA IN MONTANA

Reports from P. A. Young give the following information:

Bacterium medicaginis (bacterial leaf and stem blight). Serious on leaves and stems at edge of fields.

Peronospora trifoliorum. Common but serious during the summer.

Pseudopeziza medicaginis. Common of lower quarter of leaves at Lewistown.

Pyrenopeziza medicaginis. Not seen at Moccasin in June and July, 1929, although it occurred in epidemic form in 1928. In a number of other places this year it was serious sometimes showing 100 per cent infestation.

Uromyces medicaginis. First report for the state.

Albino (Undet.) In a number of fields. One-tenth to 10 per cent of plants show albino leaves and stems; average infestations about 0.2 per cent; a few spots of 10 to 20 per cent.

White spot (physiological). Traces of injury seen in several fields. One spot killed in one field.

DOWNY MILDEW OF SOYBEAN FOUND IN ILLINOIS

In the Plant Disease Reporter for September 15, page 129, Peronospora manschurica (P. sojae) was reported from Massachusetts for the first time, on Illini soybeans growing at Amherst. It was determined that the seed used had come from a grower at Newman, Illinois. The disease had not been reported from Illinois but thinking that the fungus might possibly have been introduced with the Illini seed collaborators L. R. Tehon and G. L. Stout made special inquiries concerning possible occurrence this year on the Newman farm. They were not able to visit the farm themselves but requested the County Adviser and local Agricultural High School teacher to do so. The result of this inquiry was negative. However, in the western part of the state on a recent trip Tehon and Stout examined several fields and although it was too late in the season to observe the disease easily they collected the mildew in one field of the Manchu variety on September 25 at Bement, Piatt County. Later, on October 1, they found it also in Champaign County near Mahomet on Manchu soybeans and October 3 in the Experiment Station plots at Urbana. Concerning the latter occurrence they wrote on October 7:

> "In our examinations of the plots here on the experimental farm on October 3, we found a downy mildew on the following varieties: Manchu, Aksarben, Illini, a United States Department of Agriculture importation labeled only as 54610-3, another United States Department of Agriculture introduction labeled only as 04002-B, and another in a plot for which the varietal name is not now at hand. We did not find the mildew on the

following varieties, although we made a careful search: Ebony, Morse, Wilson, Peking, Virginia, West Virginia No. 8, Mansoy, Harbinsoy, and Illsoy. In the field, we thought we had found it on Dunfield, but after we got back to the laboratory, a microscopic examination did not reveal any Peronospora present on the leaves of this variety.

"Heretofore, we have never collected any Peronospora on soybeans in Illinois, and it was not particularly easy to find these specimens which we have just collected, i.e., the fungus does not appear to be very abundant at this time. The soybean season is far advanced here now, and only a very few leaves were left on most varieties at the time of our collection.

"We did observe that the fungus was considerably more abundant on the Manchu variety and this was true both in our field collection at Mahomet, Champaign County (although the identity of the variety there was not 100 per cent certain), and also in our collections here in the experimental plots."

DISEASES OF TREES AND ORNAMENTALS

ADDITIONAL NOTES ON WILLOW DISEASES IN NEW ENGLAND

Fusicladium saliciperdum was collected by Collins and Spaulding at Belfast, Rockport, and Woolwich, Maine, these being additional to definitely mentioned localities for this fungus by Clinton and McCormick.

Physalospora miyabeana has been collected at Chesterfield, New Hampshire, and at Bridgwater, Middlesex, Montpelier, Plymouth and Sharon, Vermont, by Spaulding. (Perley Spaulding, Oct. 19)

BASAL ROT OF NARCISSUS

Freeman Weiss has just completed the season's work on the investigation of narcissus diseases, with particular emphasis on the basal rot of narcissus. Experiments conducted in the sections where narcissus are grown on a large scale commercially, namely, Virginia and Long Island, have shown that under a moderately low, uniform storage temperature the amount of rot in properly cured bulbs can be held to a negligible per cent. The use of cold storage for this purpose has been found feasible both for controlling rot and for satisfactory development of flower buds. Several narcissus growers are planning to construct special storage houses next year for artificial control of temperature and humidity. Disinfection of planting stock in various ways has shown increase of 20 to 40 per cent in the yield of salable bulbs over untreated stock. (Horticultural Crops and Diseases, Oct. 15)

SOME SPECIMENS RECEIVED

Except where noted, collections and determinations were made by G. Hamilton Martin.

Coniothyrium olivaceum Bon. var. aceris Ferraris on leaves of Acer platanoides, Wyoming, Delaware, September 27. Collected by J. F. Adams. First report to the Plant Disease Survey for the United States.

Cladosporium epiphyllum (Pers.) Mont. on leaves of Acer platanoides, Wyoming, Delaware, September 27. Collected by J. F. Adams. On leaves of Acer rubrum, Great Falls, Maryland, October 18. Collected and determined by Vera K. Charles. First report to the Plant Disease Survey for these states.

Kabatiella polyspora (Bub. & Syd.) Karok. on leaves of Acer platanoides, Wyoming, Delaware, September 27. Collected by J. F. Adams. First report to the Plant Disease Survey for the United States.

Macrophoma candollei (Berk. & Vogl., leaf blight on Buxus sempervirens, Charleston, South Carolina, October 1929. Received from G. M. Armstrong. First report to Plant Disease Survey for this state.

Pleospora herbarum var. iridis Cke. on leaves of Iris germanica, Virginia Beach, Virginia, August 25. First report to the Plant Disease Survey for the United States

Rhizoctonia crocorum (Pers.) DC. on Phytolacca americana, Temple, Texas, October. Collected and determined by B. F. Dana. First report to the Plant Disease Survey for the United States.

Phomopsis salicina (Westend.) Sacc. & Roum. on twigs of Salix sp., Virginia Beach, Virginia, August 25. First report to the Plant Disease Survey for the United States.

Phyllosticta apicalis Davis, leaf spot on Salix sp., golden willow, Manhattan, Kansas, October 10. Collected by C. O. Johnston. First report to the Plant Disease Survey for this state.

Rhizoctonia crocorum (Pers.) DC., violet root rot on Sambucus canadensis, Temple, Texas, October 26. Collected and determined by B. F. Dana. First report to the Plant Disease Survey for the United States.